

Translation

PATENT COOPERATION TREATY

PCT/FR2003/003358



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference CLI 99/01B	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/FR2003/003358	International filing date ( <i>day/month/year</i> ) 13 novembre 2003 (13.11.2003)	Priority date ( <i>day/month/year</i> ) 19 novembre 2002 (19.11.2002)
International Patent Classification (IPC) or national classification and IPC C21D 1/19, C22C 38/14		
Applicant INDUSTEEL CREUSOT		

<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of _____ sheets.</p>
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>

Date of submission of the demand 10 mai 2004 (10.05.2004)	Date of completion of this report 04 August 2004 (04.08.2004)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FR2003/003358

## I. Basis of the report

## 1. With regard to the elements of the international application:\*

- ☒ the international application as originally filed
- ☒ the description:  
pages \_\_\_\_\_ 1-9 \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☒ the claims:  
pages \_\_\_\_\_ 1-13 \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, as amended (together with any statement under Article 19  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the drawings:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

## 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/fig \_\_\_\_\_

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FR 03/03358

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims	1-13	YES
	Claims		NO
Inventive step (IS)	Claims	1-13	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-13	YES
	Claims		NO

**2. Citations and explanations**

This report makes reference to the following documents:

D1: EP 0739993 A

D2: EP 0527276 A

The invention proposes a process that uses steel having a defined composition and in which the hot-shaped or heated workpiece is subjected to an annealing thermal treatment in particular temperature and cooling speed conditions in order to produce steel workpieces, for example steel plates 2 to 15 mm thick, that are abrasion-resistant and can be welded and heat-cut. The thus produced workpiece has a martensitic or martensitic-bainitic microstructure that contains carbides and 5-20% retained austenite.

Document D1, the document that is closest to the invention, describes this type of process and abrasion-resistant workpieces.

However, that document does not evidently describe or suggest the combination of a steel composition, especially involving Ti and Zr, with the claimed cooling conditions in order to improve weldability and ease of cutting.

The subject matter of claims 1 and 8 can therefore be considered novel (PCT Article 33(2)).

Prior to D1, D2 suggested the admixture of Ti to weldable steels containing 0.2 to 0.35% carbon in order to improve abrasion-resistance. The steels disclosed by D2 (see the examples) differ from those known from D1 not only by their Ti content but also, for example, by their Si and Al content, which contributes to the formation of metastable austenite. The annealing conditions indicated in D2 are incompatible with those required by D1. Proceeding from D1, a person skilled in the art would thus not be able to arrive at the subject matter of claims 1 and 8 in an obvious manner (PCT Article 33(3)).

Claims 2-7 and 9-13 are dependent on claims 1 and 8, respectively, and thus also meet the novelty and inventive step requirements.

# TRAITE DE COOPERATION EN MATIERE DE BREVETS

## PCT

### RAPPORT D'EXAMEN PRELIMINAIRE INTERNATIONAL

(article 36 et règle 70 du PCT)

REC'D 05 AUG 2004

WIPO PCT

Référence du dossier du déposant ou du mandataire	<b>POUR SUITE A DONNER</b> voir la notification de transmission du rapport d'examen préliminaire international (formulaire PCT/PEA/416)	
Demande internationale No. PCT/FR 03/03358	Date du dépôt international (jour/mois/année) 13.11.2003	Date de priorité (jour/mois/année) 19.11.2002
Classification internationale des brevets (CIB) ou à la fois classification nationale et CIB C21D1/19		
Déposant USINOR et al.		



1. Le présent rapport d'examen préliminaire international, établi par l'administration chargée de l'examen préliminaire international, est transmis au déposant conformément à l'article 36.
2. Ce RAPPORT comprend 5 feuilles, y compris la présente feuille de couverture.
 

☐ Il est accompagné d'ANNEXES, c'est-à-dire de feuilles de la description, des revendications ou des dessins qui ont été modifiées et qui servent de base au présent rapport ou de feuilles contenant des rectifications faites auprès de l'administration chargée de l'examen préliminaire international (voir la règle 70.16 et l'instruction 607 des Instructions administratives du PCT).

Ces annexes comprennent    feuilles.

3. Le présent rapport contient des indications et les pages correspondantes relatives aux points suivants :

- I    ☒ Base de l'opinion
- II   ☐ Priorité
- III ☐ Absence de formulation d'opinion quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle
- IV ☐ Absence d'unité de l'invention
- V   ☒ Déclaration motivée selon la règle 66.2(a)(ii) quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle; citations et explications à l'appui de cette déclaration
- VI ☐ Certains documents cités
- VII ☐ Irrégularités dans la demande internationale
- VIII ☐ Observations relatives à la demande internationale

Date de présentation de la demande d'examen préliminaire internationale  10.05.2004	Date d'achèvement du présent rapport  04.08.2004
Nom et adresse postale de l'administration chargée de l'examen préliminaire international   Office européen des brevets D-80298 Munich Tél. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Fonctionnaire autorisé  Boureau, J-L  N° de téléphone +49 89 2399-8454  

PCT/FR 03/03358

**RAPPORT D'EXAMEN  
PRÉLIMINAIRE INTERNATIONAL**

Demande internationale n°

**PCT/FR 03/03358**

6. Observations complémentaires, le cas échéant :

**V. Déclaration motivée selon l'article 35(2) quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle; citations et explications à l'appui de cette déclaration**

1. Déclaration

Nouveauté	Oui:	Revendications	1-13
	Non:	Revendications	
Activité inventive	Oui:	Revendications	1-13
	Non:	Revendications	
Possibilité d'application industrielle	Oui:	Revendications	1-13
	Non:	Revendications	

2. Citations et explications

**voir feuille séparée**

**Concernant le point V**

**Déclaration motivée quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle; citations et explications à l'appui de cette déclaration**

Il est fait référence aux documents suivants :

D1=EP 0739993 A

D2=EP 0527276 A

Afin de produire des pièces en acier, par exemples des tôles de 2 à 150 mm d'épaisseur, résistant à l'abrasion et aptes au soudage et au découpage thermique, l'invention propose un procédé mettant en oeuvre un acier de composition définie où la pièce formée à chaud ou réchauffée est soumise à un traitement thermique de trempe dans des conditions de température et de vitesse de refroidissement particulières. La pièce obtenue présente une microstructure martensitique ou martensito-bainitique contenant des carbures et de 5 à 20% d'austénite retenue.

Ce type de procédé et de pièces résistant à l'abrasion est connu du document D1, document le plus proche de l'invention.

Cependant, ce document ne décrit ni ne suggère de manière évidente la combinaison de la composition d'acier, notamment en ce qui concerne Ti et Zr, et des conditions de refroidissement revendiquées, de manière à améliorer l'aptitude au soudage et au découpage.

L'objet des revendications 1 et 8 peut donc être considéré comme nouveau (Article 33(2) PCT).

Antérieurement à D1, D2 suggérait d'ajouter Ti à des aciers soudables contenant 0,2 à 0,35% de carbone pour améliorer la résistance à l'abrasion. Les aciers divulgués par D2 (voir les exemples) diffèrent de ceux connus de D1, non seulement par la teneur en Ti mais aussi, par exemple, par les teneurs en Si+Al, contribuant à la formation d'austénite métastable. Les conditions de trempe données dans D2 sont incompatibles avec celles qui sont requises par D1. Partant de D1, l'homme du métier ne pouvait donc arriver de manière évidente à l'objet des revendications 1 et 8 (Article 33(3) PCT).



Les revendications 2 à 7 et 9 à 13 dépendent des revendications 1 et 8 respectivement et remplissent donc également les conditions de nouveauté et activité inventive.